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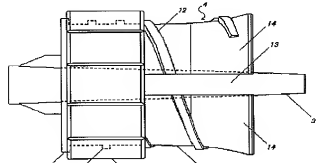
(71)出願人　000153030
株式会社ジェイ・エム・エス
広島県広島市中区加古町12番17号

(72)発明者　幸　敏彦
広島県広島市中区加古町12番17号　株式会社ジェイ・エム・エス内

Ｆターム(参考)　3H013 GA08
4C066 CC01 CC05 GG13 JJ03

(54)【発明の名称】２重ルアーロック式接続装置

(57)【要約】
【課題】　医療用途の液体あるいは気体を移送させるための中空部材を接続するための医療器具の接続装置において、より強固で確実な接続性が得られ、その接続操作性の高い医療用接続装置を提供する。
【解決手段】　本発明は上記課題を解決するため、中空で円筒状であり、その内面部に被接続装置と螺着するよう螺条を設けた接続装置で、外面部及び内面部にそれぞれ螺条が設けられ、前端部側に少なくとも２つ以上のスリットが設けられてなる第１接続部材と、該第１接続部材の外周に螺着するよう内面部に螺条が設けられた中空で円筒状の第２接続部材から構成され、第２接続部材を第１接続部材の螺着方向に回動すると、第１接続部材の前端部側が縮径してなることを特徴とする接続装置で、第１接続部材と被接続装置と螺着にて接続し、更に第１接続部材の外周部に設けられた第２接続部材によりその螺着をより強固にするといった２重のルアーロック式接続装置を提供する。



* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1]A contact comprising the 2nd connecting member cylindrical in hollow characterized by comprising the following.
The 1st connecting member by which it is cylindrical in hollow, a spiral rib is provided in a surface part and an internal surface portion with a contact which provided a spiral rib, respectively so that it may screw on with a contact, and it comes to provide at least two or more slits in the front end part side.
It is a spiral rib to an internal surface portion so that it may screw on with a spiral rib provided in a peripheral part of this 1st connecting member.

[Claim 2]Said contact according to claim 1 which a front end part of said 1st connecting member will reduce the diameter, and will be characterized by things if said 2nd connecting member is rotated in the screwing direction.
[Claim 3]Said contact according to claim 1 with which an outer diameter of said 1st connecting member forms a taper in the front end part side from the base end side, it becomes a major diameter, and an inside diameter is moreover characterized for a front end part and a base end by being an equal diameter.
[Claim 4]Said contact according to claim 1 characterized by coming to arrange at least two or more slits provided in said 1st connecting member on the circumference of the 1st connecting member as it is also in a distance at equal intervals.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the contact which connects the hollow members of a medical supply which transport the fluid or gas of medical application.
[0002]
[Description of the Prior Art]In a hollow member like the flexible tube of the medical supply to which it is used, for example, gases, such as fluids, such as blood or a drug solution, an anesthetic gas, or oxygen gas, are made to transport in a medical site, In many cases, it is used with the contact in which various hollow members were provided by each end by the usage, connecting. Various methods are adopted as the connection type of the contact which connects hollow members in order to obtain the firmer connectivity of each contacts, such as a fitting method, a screwing type with a screw, and a lure lock method. However, in a actual medical site, there is a case where the contact which has connected the hollow member by accidental accidents, such as a twist of the flexible tube connected to vibration or a hollow member, for example, loosens, while using these hollow members. When this contact loosens, the fluid or gas which passes through the inside of a hollow member will be revealed, and there is also a possibility of causing inviting mental agitation to a patient and remedially critical trouble.
[0003]Many connection types by the lure-type contact provided in the hollow member end are adopted as the connection type of the hollow members of a medical supply. As shown in drawing 7, the contact 6 in a conventional example comprises the screw cylinder 60 installed so that it might fit loosely into the peripheral part of the hollow male pipe 3 and this male pipe 3 for transporting the fluid or gas made into the purpose. The spiral rib 61 is formed in this screw cylinder 60 internal surface portion. This screw cylinder 60 is formed so that it may fit loosely into male pipe 3 peripheral part, but it is prevented by the suspending portion 62 provided in screw cylinder 60 internal surface portion so that it might not break away with the male pipe 3, and the suspending portions 31 and 32 provided in male pipe 3 peripheral part. When connecting this contact 6 and a contact (not shown), the muricoid which made the tip part of the male pipe 3 of the contact 6 fit in into the centrum of the female tube part of a contact, made rotate the screw cylinder 60 provided in male pipe 3 peripheral part, and was provided at the tip of a female tube part -- a piece and the spiral rib 61 provided in screw cylinder 60 internal surface portion are made to screw on, and connection is completed.
[0004]although that connection is maintained when the screw cylinder is screwing this method on with the contact -- the time of use connection -- for example, vibration etc. -- the screw cylinder of a contact, and the muricoid of a contact -- screwing with a piece canceled and there was a danger that connectivity would be spoiled.
[0005]The connection type which aimed at improvement in the connectivity of a medical supply is indicated by JP,62-15582,Y. according to this gazette -- the end of the passage 2 of the fluid of the medical device 1, or a gas -- a periphery -- a muricoid -- the female tube 4 which has the piece 3, [form and] forming the male pipe 7 in the end of the passage 6 of the fluid of other medical devices 5, or a gas -- the periphery of this male pipe 7 -- a muricoid -- the screw cylinder 8 which screws the piece 3 on being made to fit in loosely slidably, and in what ******(ed) by the suspending portion 10 of male pipe 7 outside surface by the step 9 provided in the rear end part inner surface of the screw cylinder 8, Make the male pipe 7 fit in loosely slidably by the rear end part side of this screw cylinder 8, and the screw cylinder

braking pipe 11 is formed, With the spiral rib 12 of the screw cylinder 8, and the spiral rib 13 of a reverse screw, screw the end part of this braking pipe 11 on the rear end part of the screw cylinder 8, and to the other end side. When it rotates in the direction which the braking pipe 11 deserts to the screw cylinder 8, the fluid or gas passage contact of the medical device which forms the restricting part 14 which prevents movement of the braking pipe 11 and makes the step 9 of the screw cylinder 8 weld by pressure to the suspending portion 10 of the male pipe 7 in the male pipe 7 is indicated.

[0006]

[Problem(s) to be Solved by the Invention]the fluid or gas passage contact of a medical device indicated by this gazette — the screw cylinder 8 and a muricoid — after the completion of screwing of the piece 3, the braking pipe 11 continues rotation towards screwing release along with the spiral rib 13, moves in the restricting part 14 direction in the rear end part, and contacts. Then, the step 9 of the screw cylinder 8 made it weld by pressure to the suspending portion 10 of the male pipe 7 according to the reaction force, and the mechanism in which rotation of the screw cylinder 8 is prevented is taken. However, when the construction material of these devices uses the comparatively elastic construction material of polypropylene, polyethylene, etc., power is absorbed according to the pliability of the construction material at the time of pressure welding, and there is the feature that sufficient reaction force is not acquired and as a matter of fact the effect expected is not acquired. Then, since comparatively hard construction material like polycarbonate would be used inevitably, the operation at the time of the pressure welding or release took remarkable power, and there was the feature that the operativity as a medical device mainly operated only by a fingertip is not necessarily good.

[0007]Then, in the contact of the medical device for connecting the hollow member for making the fluid or gas of a medical-application way transport, firmer and positive connectivity is obtained and the purpose of this invention provides the high medical-application contact of the dialing operation nature.

[0008]If it says, the contact which firmer screwing can maintain is provided in the medical-application contact of a lure lock method.

[0009]

[Means for Solving the Problem]In order to solve an aforementioned problem, a contact concerning this invention, With a contact which provided a spiral rib so that it might be cylindrical in hollow and might screw on the internal surface portion with a contact. The 1st connecting member by which a spiral rib is provided in a surface part and an internal surface portion, respectively, and it comes to provide at least two or more slits in the front end part side, If it comprises the 2nd cylindrical connecting member in hollow where a spiral rib was provided in an internal surface portion so that it may screw on a periphery of this 1st connecting member, and the 2nd connecting member is rotated in the screwing direction of the 1st connecting member, A double lure lock type contact of strengthening the screwing more by the 2nd connecting member that connected with the 1st connecting member and a contact by screwing, and also was provided in a peripheral part of the 1st connecting member with a contact which the front end part side of the 1st connecting member reduces the diameter, and is characterized by things is provided.

[0010]A term of a "front end part" means the direction of a side linked to a contact of a contact, and a term of a "base end" as used in a contact indicated in this specification means the direction of the opposite hand.

[0011]

[Embodiment of the Invention]The contact concerning this invention comprises the 2nd connecting member installed so that it might screw on the peripheral part of the 1st hollow connecting member and this 1st connecting member with a cylindrical shape. When carrying out normal use of the contact of this invention, the hollow member for transporting a fluid or a gas uses it with the contact which installs the male pipe in the air connected to the another side end in the centrum of this contact, and serves as a partner who connects.

[0012]Below, with reference to an accompanying drawing, one example is shown and described about the details of the contact which is this invention.

[0013]each of the contact 4 which requires drawing 1 and drawing 2 for this invention — they are a side view and a perspective view. as drawing 1 and drawing 2 show, the 1st connecting member 1 is cylindrical in hollow — the internal surface portion — the muricoid of a contact — it screws on with the spiral rib 21 of the 2nd connecting member 2 that the piece and the spiral rib 11 screwed on are formed, and the spiral

rib 12 was formed in the surface part, and was provided in the peripheral part of the 1st connecting member 1, and is installed. Furthermore, the slit 13 is formed in shaft orientations to the 1st connecting member mountain side part at the 1st connecting member front end part side, and the piece 14 of a front end part divided by the slit 13 is formed in the 1st connecting member front end part side. The secession to the direction of a base end by sudden rotation of the 2nd connecting member 2 that the suspending portion 15 is formed in the base end of the 1st connecting member 1, and is provided in the 1st connecting member peripheral part is prevented. As for the contact 4 applied to this invention on the other hand as shown in drawing 1, it is common to use it, where it fitted in loosely and the contact 4 is installed in the peripheral part of the male pipe 3 (not shown in drawing 2) of the hollow for transporting a fluid or a gas so that it may be rotatable.

[0014]Next, the operation method of the contact concerning this invention is explained. Drawing 3 – 6 are the sectional views showing a series of states at the time of connection between the contact 4 concerning this invention, and the contact 5.

[0015]When connecting the contact 4 and the contact 5, the tip part of the male pipe 3 first formed in the centrum of the contact 4 is inserted into the centrum by which the opening was carried out to the tip part of the female tube 51 of the contact 5, It is made to fit in and the free passage of the hollow members which transport the fluid or gas provided in both connecting members is secured (drawing 3). then, the muricoid provided in the tip part of the female tube part 51 of the contact 5 — the piece 52 coming to be located in the opening tip part of the 1st connecting member 1 of the contact 4, and to it, rotating the 1st connecting member 1 in this state — the muricoid of the female tube 51 — the piece 52 and the spiral rib 11 provided in the internal surface portion of the 1st connecting member 1 screw on, and both devices are connected (drawing 4, 5). Next, if the 2nd connecting member 2 provided in the peripheral part of the 1st connecting member 1 is rotated, the spiral rib 21 of the 2nd connecting member 2 will screw on along with the spiral rib 12 provided in the surface part of the 1st connecting member 1, the 2nd connecting member 2 will move forward to the 1st connecting member front end part side, and screwing will be completed (drawing 6). Since it is welded by pressure by the 2nd connecting member 2 that the front end part of the 1st connecting member 1 contacts and the slit 13 is further formed, rotating the 2nd connecting member 2 at this time if it is made to move forward to the 1st connecting member front end part side, The power of bending toward the cylindrical central part commits each piece 14 of a front end part divided by each slit 13. As the result, the front end part circumference of the 1st connecting member 1 will reduce the diameter, The wired member 5 currently screwed on an inside will be welded by pressure more firmly (screwing), and the high connectivity of both connecting members will be maintained, securing the free passage of the hollow members which transport the fluid or gas provided in both connecting members.

[0016]In the contact of this invention, it is that a mode [be / the inside diameter of the 1st connecting member 1 / the front end part and base end side is an equal diameter, and / the shape which inclines toward the front end part side from the base end side by an outer diameter turning into a major diameter from the base end side toward the front end part side (taper)] is more desirable. If taper shape as for which the outer diameter by the side of the front end part of the 1st connecting member becomes larger than the outer diameter by the side of a base end is made, If it is made to rotate so that the 2nd connecting member 2 may be made to screw on the 1st connecting member 1 and the 2nd connecting member 2 makes it arrange to the 1st connecting member front end part side, the power in which the 1st connecting member 1 and the 2nd connecting member 2 contact will become larger. It works in the direction by which each piece 14 of a front end part divided by each slit 13 provided in the 1st connecting member is bent more toward the cylindrical central part, The front end part side of the 1st connecting member 1 will reduce the diameter more, the 1st connecting member 1 is reflected in the power on which the wired member 5 is made to screw as a result, and the effect made to screw on firmly is produced.

[0017]At least two or more slits 13 which are provided in the front end part of the 1st connecting member 1, and are prolonged to this 1st connecting member mountain side part in shaft orientations need to be provided. When screwing rotation of the 2nd connecting member is carried out, the front end part of the 1st connecting member reduces the diameter of the contact of this invention, and it strengthens screwing with a contact and is characterized by things. Since the mechanism in which the 1st connecting member front end part is sagged in the central direction of a circle with pressure welding with the spiral rib of the 1st connecting member is adopted when making the 2nd connecting member screw on, in order to attain this,

by providing two or more slits in the front end part of the 1st connecting member. Two or more pieces of a front end part will be formed, and the diameter of the 1st connecting member is reduced because each piece of a front end part bends in a central direction. If the number of slits can attain the effect of this invention with two or more, and it is a grade which does not have trouble in rotation of the 2nd connecting member, however it may provide a slit, it does not interfere. It is desirable to arrange a slit so that each front end part of the 1st connecting member formed of a slit about the physical relationship of a slit may become isomorphous. That is, a desirable mode is arranged so that the distance between each slit on the circumference of the 1st connecting member may become equal. If it is a grade which does not have trouble in rotation of the 2nd connecting member about the shape of a slit, it will not be limited in particular.

[0018]As for the moving direction at the time of screwing of the 1st connecting member and the 2nd connecting member which constitutes the contact concerning this invention, it is desirable respectively that it is the direction. If the spiral rib of each member is formed so that the moving direction at the time of screwing of the 1st connecting member and the 2nd connecting member may turn into an opposite direction, the 1st connecting member in namely, the state where it was made to screw on thoroughly towards being in the female tube of a contact. It is because the opposite direction is made to carry out screwing rotation along with the spiral rib in which the 2nd connecting member was provided by the peripheral part of the 1st connecting member and there is a possibility that the 2nd connecting member may interfere with connection with a contact since power is added to the screwing releasing direction to a female tube to the 1st connecting member.

[0019]If a manufacture side and a cost aspect are taken into consideration about the construction material of the contact concerning this invention, it is desirable that it is a thing made of a synthetic resin. About especially the 1st connecting member, since a front end part is sagged with the pressure welding at the time of screwing of the 2nd connecting member and it is necessary to reduce the diameter of the 1st connecting member front end part side, it is desirable that it is a synthetic resin which has pliability comparatively, for example, synthetic resins, such as polypropylene and polyethylene, are preferred. About the 2nd connecting member, since it is necessary to weld the 1st connecting member by pressure, the high synthetic resin of the pliability which absorbs the reaction force is seldom suitable, and it is desirable that it is a synthetic resin whose hardness is comparatively higher than the 1st connecting member, such as polycarbonate and rigid, comparatively high polypropylene.

[0020]In the peripheral part of the 2nd connecting member, and the part to which it is got blocked, and fingers contact at the time of rotating operation so that it may screw on, it is desirable to process the skid effects, such as a rib or a knurl, into the shape which has **** unevenness so that the stable operativity may be acquired.

[0021]Although the example was shown and described as a contact of the hollow members for transporting a fluid or a gas for the contact which is this invention into this specification, the contact of this invention is not limited only to an example. For example, it could branch in the shape of a branch to the opposite hand which the male pipe which fits loosely into this contact connects with a contact, and a part of three-way cock that the opening-and-closing plug is formed may be accomplished.

[0022]The technique which makes connection complete the contact of this invention to a contact, Namely, make the male pipe of a contact, and the female tube of a contact fit in, and then the 1st connecting member of a contact is rotated, the muricoid of a wired member -- in a series of dialing operation at the time of connection of making it screw on a piece, making the 1st connecting member rotate the 2nd connecting member continuously, and making it screw on, when [actual] operating it, it is operational only with the fingers of one hand. If it compares with the dialing operation of the contact in the former shown in drawing 7, To a series of operations of the lure lock-type contact in the former, the contact concerning this invention. It is a form where the rotatably operating which rotates the 2nd connecting member is added, and although it increased by one step as operation, even if the 1st connecting member and the 2nd connecting member are the continuous rotatably operating to a uniform direction and it compares them with the conventional contact as the whole operativity, it is almost equal. For this reason, in mastering the technique of the contact of this invention for actual health care professionals, it can master easily, without requiring difficulty in any way.

[0023]

[Effect of the Invention]According to the contact which is this invention, it becomes possible to maintain the connectivity, connecting the hollow members which transport a fluid or a gas, and keeping both free passage dense. As compared with the contact in the former, it has a mechanism which strengthens connectivity with a contact more. This mechanism is attained by having two incomes of each screwing with the 1st connecting member that the contact of this invention constitutes and that carries out direct continuation to a wired member, and the 2nd connecting member currently installed in the peripheral part of this 1st connecting member. That is, the first connectivity is first obtained by screwing to the wired member of the 1st connecting member. Next, overall connectivity has been obtained by two steps of continuous operations of aiming at improvement in overall connectivity by giving the second further connectivity to the first above-mentioned connectivity by screwing to the 1st connecting member of the 2nd connecting member. Therefore, unless screwing of the 2nd connecting member currently installed in the outside of the 1st connecting member that constitutes the contact of this invention is canceled, in order that screwing with the 1st connecting member and the female tube of a contact may not cancel, A contact and a contact do not break away suddenly and the effect of preventing revealing the fluid or gas of medical application transported into a hollow member is done so.

[0024]Since the attachment by screwing is adopted in connecting a contact with a contact, Since connection can be completed by operation only by the rotatably operating of both the 1st connecting member and the 2nd connecting member who constitute a contact, it becomes possible to provide a good contact in the dialing operation nature.

[Translation done.]

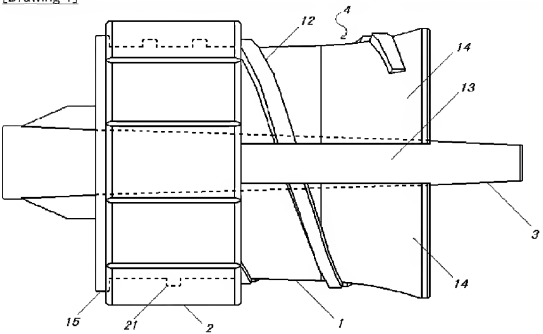
DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]The side view of the contact concerning this invention
[Drawing 2]The perspective view of the contact concerning this invention
[Drawing 3]The sectional view showing the connected state of the contact concerning this invention, and a contact
[Drawing 4]The sectional view showing the connected state of the contact concerning this invention, and a contact
[Drawing 5]The sectional view showing the connected state of the contact concerning this invention, and a contact
[Drawing 6]The sectional view showing the connected state of the contact concerning this invention, and a contact
[Drawing 7]The side view of the contact in a conventional example
[Description of Notations]
1. The 1st connecting member
11. Spiral rib
12. Spiral rib
13. Slit
14. The piece of a front end part
15. Suspending portion
2. The 2nd connecting member
21. Spiral rib
3. Male pipe
31. Suspending portion
32. Suspending portion
4. Contact
5. Contact
51. Female tube
52. a muricoid -- a piece
6. Contact
60. Screw cylinder
61. Spiral rib
62. Suspending portion

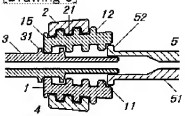
[Translation done.]

DRAWINGS

[Drawing 1]



[Drawing 3]



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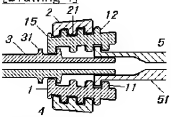

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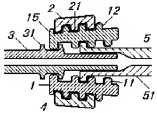
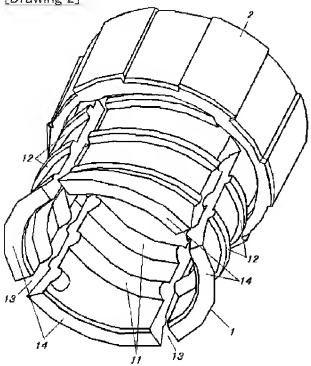


[Drawing 2]



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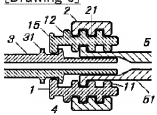
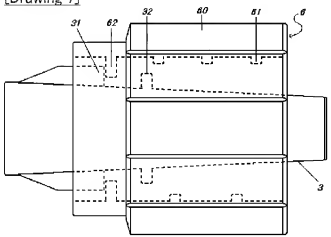


[Drawing 7]



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PATENT ABSTRACTS OF JAPAN

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(71)Applicant : JMS CO LTD
(72)Inventor : YUKI TAKEHIKO

(54) DOUBLE LUER-LOK TYPE CONNECTOR

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a medical connector which has high connection operability by obtaining strong and sure connectability in the connector of a medical instrument for connecting a hollow member for transporting liquid or gas for medical use.
SOLUTION: The connector which is hollow and cylindrical and is provided with a spiral bar to be screwed with a device to be connected at its inner surface part consists of the first connection member provided with spiral bars respectively at its outer surface part and the inner surface part and provided with at least two or more slits on the side of a front end part and the second connection member in a hollow and cylindrical state, which is provided with the spiral bars on the inner surface part so as to be screwed to the outer periphery of the first connection member. When rotating the second connection member in the screwing direction of the first connection member, the diameter of the side of the front end part of the first connection member is-reduced. The first connection member and the device to be connected are connected by screwing and the screwing is strengthened by the second connection member provided at the outer peripheral part of the first connection member in this double Luer-Lok type connector.